

LETTERS TO THE EDITOR

Risk of Sudden Death With Exercise

Cobb and Weaver (1) conclude that physicians counseling patients with coronary heart disease, whether evident or not, should carefully ponder whether vigorous exercise is worth the risk in these patients. If they are referring to "all out" exercise in such patients, we agree. However, if they are referring to moderately vigorous, prescribed, supervised aerobic exercise, we disagree.

Siscovick et al. (2) analyzed the relation of exertion and sudden cardiac death in 133 victims of cardiac arrest without previously recognized cardiovascular disease. They found the incidence of cardiac arrest during high intensity exercise to be 5- to 56-fold greater than at other times. However, they also found that the overall risk of cardiac arrest—that during exercise and at rest—was only 40% among the habitually most active men compared with the sedentary men. Thus, it appears that regular moderately vigorous exercise actually decreases the risk of sudden cardiac death.

Cardiac rehabilitation programs for patients with coronary disease entail moderately vigorous aerobic exercise as opposed to all out exertion. Cobb and Weaver discussed the incidence of cardiac arrest during supervised cardiac rehabilitation programs but did not include the incidence rates that Haskell (3) gathered: for cardiac arrest, 1 in 32,500 person-hours of participation, and for fatalities, 1 in 116,000 person-hours. They do present data, however, from studies reporting somewhat higher rates of cardiovascular complications. They cite the study of Hossack and Hartwig (4), for example, reporting an incidence of cardiac arrest of 15,000 person-hours in the CAPRI program from 1968 to 1981. During the latter part of this 13 year reporting period, however, from 1976 to 1981, Hossack and Hartwig found the incidence of cardiac arrest to be 1 in 25,000 person-hours, much closer to Haskell's finding of 1 in 32,500 person-hours.

A more recently completed survey (5) reported that from 1980 to 1985, the incidence of cardiac arrest occurring in 167 randomly selected United States cardiac rehabilitation programs was 1 in 112,000 person-hours. The fatality rate was 1 in 784,000 person-hours. Both of these figures, representing data compiled since 1980, are markedly lower than those reported by Hossack and Hartwig or Haskell. Given these data, we submit that exercise carried out in the setting of a supervised cardiac rehabilitation program is quite safe.

In summary, we find the physiologic and psychologic benefits (6) of moderately vigorous, prescribed, supervised aerobic exercise performed by patients with coronary heart disease in cardiac rehabilitation programs to be well worth the very small risk of sudden cardiac death during these programs and may actually reduce the overall risk of sudden cardiac death.

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References

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Reply

Thomas and Van Camp may have interpreted our paper to be an indictment of cardiac rehabilitation programs involving prescribed and supervised exercise. This surely was not our intent. In fact, our concluding paragraph clearly states that our principal concern related to unsupervised exercise in patients with coronary heart disease.

Siscovick et al. (their Ref. 2) addressed the problem of cardiac arrest in men *without* recognized heart disease and showed that vigorous exercise, even in apparently asymptomatic persons, is associated with an enhanced risk for sudden cardiac arrest at the time of exertion. The fact that there may have been a long-term protective effect of habitual exercise in that study is interesting and important, but is somewhat peripheral to the point of our paper. Furthermore, we are not aware of studies which show that exercise programs for cardiac patients significantly lower the incidence of sudden death.

It is probable that exercise-induced cardiac arrest is related, among other factors, to the severity of myocardial ischemia or ventricular dysfunction as well as to the level and duration of exercise. Accordingly, variability in the reported incidence of cardiac arrest might be expected. The reason we chose to emphasize the CAPRI data is that this was the largest report of its kind—with first hand observations and detailed analyses of some 25 exertion-related cardiac arrests. Additionally, the rate of cardiac arrest was comparable with that in several other studies. We acknowledge, however, that lower rates have also been reported. As we emphasized in our study, the incremental risk of sudden death while participating in cardiac rehabilitation programs is small by any measure; and resuscitation, if required, should be highly ef-